

ADDITIONS TO THE CAREX LURIDA GROUP (CYPERACEAE) IN MEXICO, INCLUDING A NEW SPECIES FROM CHIAPAS

A. A. Reznicek
University of Michigan Herbarium
North University Building
Ann Arbor, Michigan 48109–1057

M. S. González-Elizondo
CIIDIR, IPN
Apartado Postal 738
Durango, Durango, 34000, Mexico

ABSTRACT. *Carex longiligula* is described from Chiapas, Mexico, as a new species in the *C. lurida* group. It differs from *C. durangensis*, the species most similar to it, in having much longer ligules on the main stem leaves, conspicuously ciliate pistillate and staminate scale bodies, narrower perigynia, and narrower achenes. The description of *C. durangensis*, compiled only from the holotype, is expanded based on several recent collections, and *C. lurida* is reported as new to the Flora Mesoamericana region based on a collection from Chiapas.

The *Carex lurida* group (section *Vesicariae*), as recently revised by Reznicek and González-Elizondo (1995), had six species: two in eastern North America, *C. baileyi* Britton and *C. lurida* Wahlenb., with *C. lurida* also occurring in Mexico, the Caribbean, and northern South America; two endemic species in Mexico, *C. durangensis* Reznicek & S. González and *C. rzedowskii* Reznicek & S. González; and two endemic species in Andean South America, *C. luridiformis* Mack. ex Reznicek & S. González and *C. setigluma* Reznicek & S. González. Recent field work in Chiapas and Durango has greatly expanded our knowledge of the *Carex lurida* group in Mexico and included the discovery in Chiapas of a new species, similar to *C. durangensis* in general aspect. The new species is described below as *C. longiligula*. In addition, *C. durangensis*, described only from the holotype, has now been found at several additional localities in Durango. An amplified description is included to reflect new information provided by these discoveries. As well, *C. lurida*, known previously in Mexico only from a few sites on the Caribbean slope in Hidalgo and Veracruz, was discovered in Chiapas, a significant range extension and an addition to the Flora Mesoamericana region.

Carex longiligula Reznicek & S. González, sp. nov.—TYPE: MEXICO. Chiapas: Mpio. Tenejapa, along the road to Matzam, 2.3 km from the jct. with the San Cristóbal de las Casas–Tenejapa road, 16°46'51"N, 92°32'01"W, 11 Jul 1997, S. González & A. A. Reznicek 10506, M. González, M. Pinedo (holotype: MICH!; isotypes to be distributed).

Plantae cespitosae, rhizoma lignosum; culmi fertiles 35–68 cm alti; vaginae basales atropurpureae, glabrae. Folia 4–7, laminae 9–60 cm longae, 5–8 mm latae, folia superiora culmo longiora; vaginae glabrae, ventraliter albido- vel pallido-brunneae; ligulae foliorum principalium 25–38 mm longae. Inflorescentiae (5–) 7–17

cm longae, spicae (3-) 4-5; bracteae infimae laminis 8-36 cm longis, 2.8-5 mm latis; spica terminalis omnino staminata, (2.8-) 3.8-4.9 cm longa, 3.1-4 mm lata, pedunculo 2-8 mm longo; spicae laterales (2-) 3-4, pistillatae, (2-) 3-4.3 cm longae, 8-12 mm latae, floribus (80-) 150-320 dense imbricatis. Squamae staminatae 5.3-11.3 (-25.4) mm longae, corporibus 3.5-5.6 mm longis, 1-1.5 (-1.7) mm latis, ciliatis, aristatae, aristis (0.4-) 1.1-7.8 (-22) mm longis. Squamae pistillatae 2.8-10.4 mm longae, corporibus 1.8-3 mm longis, 0.8-1.4 mm latis, ciliatis, aristatae, aristis 0.8-7.8 mm longis. Perigynia 4.7-5.4 mm longa, 1.7-1.9 mm lata, inflata, glabra, corporibus biconvexis vel suborbiculatis in rostrum (1.8-) 2.1-2.5 (-2.8) mm longum contracta. Achenia ca. 2-2.4 mm longa, 0.8-1.1 mm lata, trigona. Styli persistentes; stigmata 3. Antherae 3, ca. 1.3-2.1 mm longae.

Cespitose from stout, woody rhizomes up to 6 mm wide, the rhizomes ca. 0.8-3.5 cm long between shoots; fertile culms 35-68 cm tall, erect, trigonous, prominently angled, almost winged, antrorsely scabrous, 1-1.5 mm wide immediately below the inflorescence; bladeless basal sheaths dark purple, somewhat fibrillous with age. Leaves 4-7, distributed over the lower 4/5 of the culm; blades 9-60 cm long, 5-8 mm wide, the uppermost surpassing the inflorescence, flat to conduplicate, the margins and midrib antrorsely scabrous distally; leaf sheaths glabrous, dorsally septate-nodulose, ventrally whitish or pale brown, somewhat hyaline distally, thin, concave at the apex; ligules (0.8-) 15-38 mm long, those of the lower leaves and vegetative shoot leaves 25-38 mm long, long-acute, the free portion brownish, 0.2-0.4 mm wide. Inflorescences (5-) 7-17 cm long, 2-3.8 cm wide, with (3-) 4-5 spikes, the terminal staminate, laterals pistillate or rarely one or two with a few staminate flowers at the apex; pistillate spikes approximate or the lower separated by up to 12.5 cm, erect, nearly sessile or the lowermost on a peduncle up to 2.9 cm long; lowermost 1-3 bracts foliaceous, 8-36 cm long, 2.8-5 mm wide, antrorsely scabrous along the margin and midvein or distally on all the veins, proximally slightly septate-nodulose, sheathless or with a short sheath up to 17 mm long, the upper bracts reduced. Staminate spike (2.8-) 3.8-4.9 cm long, 3.1-4 mm wide, linear-cylindric, on a smooth peduncle 2-8 mm long. Pistillate spikes (2-) 3-4.3 cm long, 8-12 mm wide, cylindric, densely flowered with about (80-) 150-320 ascending-spreading perigynia in several to many rows. Staminate scales 5.3-11.3 (-25.5) mm long, the body 3.5-5.6 mm long, 1-1.5 (-1.7) mm wide, oblan-ceolate to linear-oblong, stramineous to brownish or purple with a green, 3-nerved center, margins ciliate in the upper 1/3-1/2, acute, the midrib prolonged into a rough awn (0.4-) 1.1-7.8 (-22) mm long, the awn (0.1-) 0.3-6.5 times as long as the body. Pistillate scales 2.8-10.4 mm long, the body 1.8-3 mm long, 0.8-1.4 mm wide, ovate to oblong, stramineous to purple-red with a green, 3-nerved center, margins ciliate in the upper 1/3-1/2, acute, the midrib prolonged into a rough awn 0.8-7.8 mm long, the awn 0.7-2.7 times as long as the body. Perigynia 4.7-5.4 mm long, 1.7-1.9 mm wide, inflated, biconvex to suborbicular in cross section, cellular-membranaceous, glabrous, greenish to pale brown or dark purple, shiny, 6-10-nerved with 2 (-3) nerves more or less evident and extending into the beak, the rest faint, sessile or short-pedicellate, contracted into a beak; beak (1.8-) 2.1-2.5 (-2.8) mm long, ca. 0.6-0.8 (-1) times as long as the body, smooth, cylindrical, slender, green to stramineous or purple-tinged, the apex bidentate with erect teeth 0.4-0.7 mm long. Achenes 2-2.4 mm long, 0.8-1.1 mm wide, trigonous with convex sides above, narrowly obovoid to ellipsoid, often with one angle curved to indented, papillose, pale yellowish brown, stipitate, at the apex tapering and continuous into the persistent, contorted style; stigmas 3. Anthers 3, ca. 1.3-2.1 mm long.

Carex longiligula is known only from the type locality in Chiapas, where it was rare in several large, wide patches in openings and at the edges of a *Schoenoplectus californicus* marsh along a small, clear stream at 2400 m.

This species is similar to *C. durangensis* in its wide leaves and general aspect and would key to it, admittedly somewhat imperfectly because of its narrower achenes, in Reznicek and González (1995); however, it is a leafier, somewhat more slender plant forming looser, wider clumps. It differs most strikingly in its longer ligules (25–38 mm on the main stem leaves versus 12–22 mm), longer staminate scale awns [(0.4–) 1.1–7.8 (–22) mm versus 0.2–1.5 (–5.4) mm], pistillate and staminate scales ciliate on the upper 1/3–1/2 of the body versus erose-ciliate only near the base of the awn, narrower perigynia [1.7–1.9 mm versus (1.7–) 1.9–2.2 mm], and narrower achenes (0.8–1.1 mm versus 1.1–1.4 mm). Additional differences are provided in Table 1.

The relatively narrow, indented achenes also might suggest a relationship with the South American species of this group, especially *C. setigluma*, with smaller perigynia and long-awned scales; however, the ciliate scale bodies and extremely long ligules of *C. longiligula* are both unique within the *C. lurida* group. *Carex longiligula* also differs from *C. setigluma* in having longer pistillate scale bodies, 1.8–3 mm long and clearly visible in the spike, and wider achenes, 0.8–1.1 mm wide. *Carex setigluma* has pistillate scales with tiny bodies 1.1–1.7 mm long, which are totally concealed in the spikes by the perigynium bodies, leaving only the awns visible, and narrower achenes, 0.6–0.8 mm wide. *Carex luridiformis* differs additionally in having large perigynium bodies, with the beaks less than half the length of the bodies (beak/body ratio 0.4–0.5); *C. longiligula* has proportionately much shorter bodies [beak/body ratio 0.6–0.8 (–1)].

Carex durangensis Reznicek & S. González, Contr. Univ. Michigan Herb. 20: 220. 1995.—TYPE: MEXICO. Durango: 7 mi SW of El Salto, 11 Jul 1970, Fitzner 262 (holotype: MSC!).

Cespitose from stout, woody rhizomes up to 6 mm wide, the rhizomes ca. 0.3–2.5 mm long between shoots; fertile culms 24–65 cm tall, erect, trigonous, prominently angled, smooth or antrorsely scabrous, (1.2–) 1.5–1.8 mm wide immediately below the inflorescence; bladeless basal sheaths brown with purple tingeing to red-purple, somewhat fibrillous with age. Leaves 4–7, mostly on the lower 2/3 of the culm; blades 5–25 (–31) cm long, 5–10 mm wide, the uppermost surpassing the inflorescence, flat, the margins and midrib antrorsely scabrous distally; leaf sheaths glabrous, very slightly septate-nodulose dorsally, whitish or pale brown, somewhat hyaline at the upper part ventrally, thin, truncate or slightly concave or convex at the apex; ligules (6–) 12–22 mm long, acute, the free portion brownish, 0.2–0.4 mm wide. Inflorescences (2.8–) 5–11 cm long, 2–3.5 cm wide, with 3–4 (–5) spikes, terminal staminate, lateral pistillate or rarely one with a few staminate flowers at the apex; pistillate spikes approximate or the lower separate, erect, nearly sessile or the lowermost on a peduncle up to 2 cm long; lowermost 1–3 bracts foliaceous, 10–26 cm long, 4.4–8.4 mm wide, antrorsely scabrous along the margin and midvein or distally on all the veins, sheathless or with a short sheath up to 15 (–45) mm long, the upper bracts reduced. Staminate spike 1.2–4.8 cm long, (1.9–) 3.1–4 mm wide, linear-cylindric, on a smooth peduncle 2–8 mm long. Pistillate spikes 2.2–4.3 cm long, 9–11 mm wide, cylindric, densely flowered with about 170–300 ascending-spreading perigynia in several to many rows. Staminate

TABLE 1. Contrasting characters of *Carex durangensis* and *C. longiligula*.

CHARACTER	<i>C. durangensis</i>	<i>C. longiligula</i>
Culm angles	acute	almost winged
Leaf blade length (fertile culms) (cm)	5–25 (–31)	9–60
Ligule length of lower stem leaves (mm)	12–22	25–38
Inflorescence length (cm)	(2.8–) 5–11	(5–) 7–17
Spike number	3–4 (–5)	(3–) 4–5
Lowermost bract width (mm)	4.4–8.4	2.8–5
Staminate scale width (mm)	1.4–2	1–1.5 (–1.7)
Staminate scale awn length (mm)	0.2–1.5 (–5.4)	(0.4–) 1.1–7.8 (–22)
Staminate scale awn/body length ratio	0.05–0.4	(0.1–) 0.3–6
Pistillate scale width (mm)	1.2–1.6	0.8–1.4
Scale body margin	entire except at base of awn, where erose-ciliate	ciliate along upper 1/3–1/2 of the body
Perigynium width (mm)	(1.7–) 1.9–2.2	1.7–1.9
Perigynium beak length (mm)	1.7–2.3	(1.8–) 2.1–2.5 (–2.8)
Beak/body length ratio	0.5–0.7	0.6–0.8 (–1)
Achene width (mm)	1.1–1.4	0.8–1.1
Achene shape	obovoid, not indented	narrowly obovoid to ellipsoid, usually indented on one angle

scales 4.3–5.8 (–9.4) mm long, the body 3.5–5 mm long, 1.4–2 mm wide, obovate to oblanceolate, brownish to purple with a green, 3-nerved center, erose-ciliate apically or at the base of the awn, acute or the midrib prolonged into a rough awn 0.2–1.5 (–5.4) mm long, the awn 0.05–0.4 (–1.1) times as long as the body. Pistillate scales 2.8–7 mm long, the body 1.7–2.5 mm long, 1.2–1.6 mm wide, ovate to oblong, whitish to purple-red with a green, 3-nerved center, the upper margin ciliate, truncate to acute, the midrib prolonged into a rough awn 1.1–5.5 mm long, the awn 0.7–2.5 times as long as the body. Perigynia ca. 4.5–5.5 mm long, (1.7–) 1.9–2.2 mm wide, inflated, biconvex to suborbicular in cross section, cellular-membranaceous, glabrous, greenish to brown or reddish brown, somewhat shiny, 6–10-nerved with 2 nerves more or less prominent and extending into the beak and the rest very faint, sessile or short-pedicellate, contracted into a beak; beak 1.7–2.3 mm long, ca. 0.5–0.7 times as long as the body, smooth, cylindrical, slender, green to stramineous, the apex sometimes purple, obliquely cut or bidentate with erect teeth 0.1–0.7 mm long. Achenes 2.1–2.4 mm long, 1.1–1.4 mm wide, trigonous with convex sides above, obovoid, papillose, whitish to yellowish brown, stipitate, at the apex tapering and continuous into the persistent, contorted style; stigmas 3. Anthers 3, ca. 1.6–2.3 mm long.

The holotype of *C. durangensis* proved to be a large, but relatively typical individual. The emended description provides adequate ranges for many features based on several ample recent collections. This quite local species of specialized habitats is now known from a few localities in Durango at 2500–2700 m, in wet

meadows and especially along moist banks of streams. *Carex durangensis* is uncommon in such habitats, but often widespread in small patches.

ADDITIONAL SPECIMENS EXAMINED. **Mexico.** DURANGO: Mpio. Canelas, Las Cebollitas, 2460 m, bosque mixto de coníferas, presencia de *Abies*, *Pinus*, *Picea*, *Cupressus* y *Pseudotsuga*, 1 Aug 1990, A. Benítez 1720 (IEB); 10 km SW of El Salto, 1 km NE of Lechería (ca. Km 110 on Hwy 40), 2620 m, 23°45'36"N, 105°26'19" W, wet meadow dominated by *Carex*, *Juncus*, *Eleocharis*, etc., in flat-bottomed valley of small stream, 17 Jul 1996. S. González & A. A. Reznicek 10307 (CIIDIR, IEB, MICH, MEXU); Mpio. Pueblo Nuevo, ca. 3.4 km S of El Salto, along road to Santa Bárbara, 2560 m, 23°44'56"N, 105°23'05"W, stream bank with *Eleocharis*, *Juncus*, and *Senecio billieturneri* in flat-bottomed valley in open *Pinus cooperi* forest, 24 Jun 2000, S. González & A. A. Reznicek 11148 (CIIDIR, MICH); Mpio. Pueblo Nuevo, ca. 2.5 km S of El Salto, along road to Santa Bárbara, 2550 m, 23°45'14"N, 105°22'50"W, marshy stream bank with *Senecio billieturneri*, *Scirpus microcarpus*, *Sparganium*, *Juncus*, and *Carex* in flat-bottomed valley in open *Pinus cooperi* forest, 24 Jun 2000, S. González & A. A. Reznicek 11153 (CIIDIR, MICH).

Carex lurida Wahlenb., Kongl. Vetensk. Acad. Nya Handl. 24: 153. 1803.—TYPE: "America septentrionali," *Hultgren s.n.* (holotype: not located).

The collection cited below represents the first record of this species from southern Mexico and from the Flora Mesoamericana region (Chater 1994). *Carex lurida* grew in a depressional marsh dominated by *Juncus*, *Carex*, *Typha*, and *Osmunda regalis*. The species was abundant at this site, in fact one of the main dominants, but was not seen in similar habitats in the general vicinity.

SPECIMENS EXAMINED. **Mexico.** CHIAPAS: along road between San Andrés Larrainzar and Puerto Cato, 2060 m, 16°53'15"N, 92°43'35"W, 12 Jul 1997, S. González & A. A. Reznicek 10510 (CIIDIR, IEB, MICH).

ACKNOWLEDGMENTS

We are grateful to the curators of the herbaria from which we examined specimens for our study of the *Carex lurida* group, including BH, CIIDIR, ENCB, F, GH, IEB, MEXU, MICH, MO, MSC, NY, PH, SD, US, and VDB. We thank Peter Ball for his helpful comments on the manuscript. S. González thanks CGPI, COFAA, and EDI, of the Instituto Politécnico Nacional, for support for research.

LITERATURE CITED

- Chater, A. O. 1994. *Carex*. In *Flora Mesoamericana*, vol. 6, ed. G. Davidse, M. Sousa S., and A. O. Chater. Mexico City: Universidad Nacional Autónoma de México; St. Louis: Missouri Botanical Garden; London: The Natural History Museum (London).
- Reznicek, A. A., and M. S. González-Elizondo. 1995. The *Carex lurida* group (Cyperaceae) in the Neotropics. *Contrib. Univ. Michigan Herb.* 20: 217–230.